



DIGITAL TRANSFORMATION IN INDIAN EDUCATION: A NEW NORMAL

Dr. Anjali Shokeen¹ | Ms. Banipreet Kaur²

¹Assistant Professor, University School of Education, Guru Gobind Singh Indraprastha University, Delhi, India.

²Research scholar, University School of Education, Guru Gobind Singh Indraprastha University, Delhi, India.

ABSTRACT

COVID-19, as a newly emerged contagious disease, has affected the health of many people across the globe. The spread of coronavirus has bounded people to stay indoors and explore the outside world through the use of technology. To follow the guidelines of WHO, the Government bodies all over the globe have forced various offices, schools and other industries to shut down, by implementing sudden lockdowns. Many of these organisations, to protect the health of their employees, asked them to continue their work from home. To curb the effects of coronavirus on students' academics, institutions have started exploring various online platforms to impart education without any interruptions. In the year 2020, the Indian education system has faced a drastic revolution in adaptation of different digital technologies. To follow covid safety norms and maintain social distancing the need for imparting education through flexible mode has been on peak. Many trends such as eLearning, Learning Management Systems (LMS), Massive Open Online Courses (MOOCs), Open Educational Resources (OERs) and Free and Open Source Softwares (FOSS), Mobile Learning, Gamified Learning and Learning Analytics started emerging in this period. In this paper, the author has reviewed various papers on the ongoing trends in digital transformation of Indian Education in the pandemic era and also has discussed the rising need of access to technology and digitally competent teachers along with various emerging trends such as Hybrid learning, Internet of things, Blockchain technology, Augmented/Virtual Reality, Globalised Learning that can lead and offer many opportunities for the education sector in post covid scenario.

KEYWORDS: COVID-19, Online education, Digital transformation, trends, new normal.

I. INTRODUCTION:

Digital technologies have always played an important role in bringing innovations in all the sectors such as education, healthcare, agriculture, Industrial etc. In India, in the last two decades, digital technologies have spread themselves to each sector of the Indian economy (Bordoloi, 2018). Though the adaptation to digital technologies and keeping up pace with the latest development in the digital world has always been challenging for people but many research and innovation have facilitated the working of these sectors. Digital technologies have also brought various changes in the education sector (Bhongade & Sarode, 2018). Till the year 2019, the schools and higher education sector were mostly applying the traditional teaching methods and there was less dependence on digital tools and techniques. The sudden impact of Covid 19 in March 2020 led to the closure of educational institutions in India. The government of India declared a nationwide lockdown to control the spread of coronavirus disease (Sahu, 2020). To continue the educational activities, institutions opted for digital mediums such as video conferencing, Open Educational Resources and online learning platforms to fulfil the requirements of classroom learning (Basilaia & Kvavadze (2020). The spread of coronavirus has brought some overnight changes in the education system. A traditional system that was deeply rooted in the minds of teachers and students was shattered and a new era of online and distant education had begun (Lall, 2020). While considering the norms of social distancing the faculties and students were forced to adapt to the changes such as the closure of institutions; online learning and communication; shifting of learning from schools to homes; Individualised learning; online mode of examination etc (Dhawan, 2020).

Online education now has become a common practice in the education sector and is being considered as 'New Normal' in our education system. The term "New Normal" refers to the state of affairs which previously felt unusual and now suddenly has become a social standard or usual practice (Collins Dictionary, n.d.). The new normal has transformed the face of Indian education. It has opened various dimensions for the education sector to transform its work in many ways (Wong, 2020). The new normal in education can be explained as reimagining the role of online learning in the Indian education system and making it an integral part of the teaching-learning activities (Shenoy et.al., 2020).

II. DIGITAL TRANSFORMATION TRENDS IN INDIAN EDUCATION: ONGOING SCENARIO:

It has been more than two years now since the emergence of the covid pandemic in India. The people are getting vaccinated and following covid precautions in their day-to-day life to stop the spread of the covid pandemic. During this time many trends started emerging in digital or online Learning. Following are some of the popular trends that took place amid the COVID- 19 pandemic and helped in bringing the digital revolution to the Indian Education sector.

- **eLearning:** eLearning or Digital learning includes the delivering of educational content and providing learning experiences through electronic mode. In this type of learning the digital resources such as computers, laptops, tablets and mobile phones etc. are used to provide formalized

learning (Lawless, 2018). eLearning requires a good internet connection and speed so that the learning should not stop (Bordoloi, 2018). Before the pandemic, many organisations were already using eLearning training for their employees to improve their performance but after the pandemic, the sudden rise of eLearning was also seen in the education industry (Barbero, 2020).

- **Learning Management Systems (LMS):** Learning management System (LMS) is software that helps in delivering eLearning or online learning. It provides support to teachers and students by organizing the online classroom, creating courses, sharing content, real-time communication and collaboration, sharing assignments, providing quizzes and analysing data (Gunawan et.al., 2019). This is a comprehensive platform that performs all tasks in one application. There are various types of LMS available in the market such as open access, cloud-based, industry-oriented etc. Many LMS give holistic support to whole educational organisations and many software individually support the need of a single teacher (Nair and Patil, 2012). This software allows users to easily enrol and get an accurate analysis of their course progress.
- **OERs and FOSS:** Open Educational Resources (OERs) are freely available and freely accessible resources. These resources help in getting access to high-quality educational resources without any monetary involvement. The content of these resources resides in the public domain with an open license and can be reused, revised, retained, remix and redistribute by anyone (Baas, 2019). The intention behind these resources is to provide freely accessible knowledge to all people without any discrimination (UNESCO, 2012). Free and Open-source software (FOSS) is also freely available and openly licensed software that can be used by anyone FOSS contains a variety of software such as Mozilla Firefox for browsing, Libre Office for complete office work, GIMP for photo editing, VLC Media Player, Linux operating system, Python programming language etc. This software gives free access to users to meet their varied demands.
- **MOOCs:** The sudden rise is also seen in the education sector in the form of Massive Open Online Courses (MOOCs) (Impey, 2020). These courses are used to promote distance and open learning through online mode. These are freely available courses that can be enrolled by anyone without any time, space and age or gender barriers (Impey, 2020). The Government of India has also worked in the field of MOOCs by introducing Swayam Platforms. These MOOCs promise the extension of reach and access to education in every part of the world. The MOOCs programme provides certificate-based interactive courses and specialization to all who want to progress in their respective fields. Easy enrolment, Online Feedbacks, assignments, auto-graded quizzes, video lectures and self-paced learning are some attractive features of MOOCs.
- **Mobile learning:** Mobile learning or mLearning occurs through virtual

media using personal electronic gadgets such as smartphones, tablets, laptops and digital notebooks etc. The rise in mobile learning is seen during times of pandemic. Many students and teachers used personal gadgets to access educational content. It is focused on providing the convenience of movement to learners while interacting with technology. This supports easy and instant sharing of information and educational content. It encourages students to ask questions and get instant responses from their teachers (Priscila, 2020). It helps in establishing real-time communication between students and teachers. In mLearning, microlearning content such as videos, animations, infographics, games, puzzles etc. can be easily shared (Priscila, 2020).

- **Gamified learning:** The introduction of fun elements in learning gave emergence to gamified learning theory. In this pandemic, many software which can make learning fun were used by teachers such as Kahoot, Mentimeter, quizizz, Go formative, Google Forms etc (Starkey, 2020). These online platforms helped the teachers to energize students during online sessions by taking instant quizzes, puzzles or formative assessments (Smiderle et al., 2020). These elements motivated the students and teachers during the home learning environment (Starkey, 2020). The attractive features such as the Leadership board, interactive puzzles, Level points etc. help to engage students in learning.
- **Learning Analytics:** Learning analytics involves the collection and analysis of data gathered from the learning habits of students and using it for the improvement of learning outcomes. The statistical analysis involved in this process helps to determine student growth and development. Online platforms such as LMS and MOOCs make use of Learning analytics to determine their learning outcome and students' performances (Omer, 2021). These computational analyses and data mining can help in transforming such raw data into knowledge and lead to better education (Miller, K., 2020).

III. POST-COVID SCENARIO: WHAT TO EXPECT?

The Post-Covid scenario beholds many opportunities for the digital transformation of the Indian education system. Some of the important futuristic aspects are given below to understand the new normal of the post-covid pandemic.

- **Access to Technology:** If we are visualizing the use of digital technologies in the future of Indian education then providing access to technology to students and teachers should be the first and foremost priority of the government (Bhongade & Sarode, 2018). Giving the right internet access, digital tools and resources will play a big role in bringing the digital revolution in the Indian education system (Bordoloi, 2018). The sudden struck of the pandemic had left no choice to teachers and students, especially in rural areas, to discontinue their teaching-learning process. Even in urban areas, the issues such as internet connectivity, low bandwidth internet, and lack of digital resources played a big role in hampering digital education. Thus, in the post covid scenario, proper access to digital resources and technology should be the prime concern.
- **Digitally competent Teachers:** In the era of digital transformation, the post covid scenario, will require digitally competent teachers who can skillfully use digital resources in the classroom and apply creative and innovative methods to teach students with digital resources (Lall, 2020). To fulfil the requirements of digitally competent teachers the government and educational organisations should increase their focus on the in-service and pre-service training programme of teachers (Shenoy et al. 2020). The innovative methods of course creation, assessment and online communication and collaboration should be taught to teachers so that they can make use of these essentials in the real classroom setting (Shenoy et al. 2020).
- **Hybrid Learning:** The hybrid learning model will be expected to take place in post covid era. In this model, learning can be delivered through the combination of both face-to-face and online learning (Fàbrega, 2021). Especially in the higher education sector, the non-classroom teaching methods in post covid scenario can promote distant learning and continuous learning (Barron et al., 2021). This model can also reduce drop-out rates and enhance student enrolment in the higher education sector.
- **Internet of Things (IoT):** In the post covid scenario the much importance can be given to digitally connected smart classrooms. The Internet of things suggests the use of smart devices such as smart classrooms, smart buildings, smart transportation to deliver holistic support to students (Meola, 2020). The Internet of Things (IoT) will help in making better-connected classrooms and also improve classroom management by doing real-time monitoring of students. It will help parents, teachers and school administration to make a better school environment and make better safety arrangements for students (D., 2021).
- **Blockchain Technology:** Also known as a digital ledger, is a promising step in transforming the system of maintaining records of payments, degrees and certifications etc. for the higher education system (NuWire, 2021). This technology has taken its roots in education during the pan-

demie time when everything became online. It empowers the higher education system to support learning while securing academic records (Kaur, 2021). It will play a big role in transforming administrative duties such as record keeping, providing digital credentials, authenticating educational achievements to reduce fraud, scholarship grants and fee submission etc in higher education (Moore, 2019; Kaur, 2021).

- **Augmented/ Virtual Reality:** The technological development in the education sector such as Augmented and Virtual Reality are designed in a way that they can provide support to learning (Tkachenko, 2018). Though many challenges come in the way of implementing such technologies, in near future, they can offer constructive and engaging learning to all students. These extended reality tools help students in visualizing the new immersive world around them and learn new skills and concepts by experiencing the same (Marr, 2021).
- **Globalized Learning:** The global pandemic has affected all of the education sectors in the whole world. The education sector in the world should come closer to discuss their problems and coping mechanisms from the after-effects of this pandemic. The students and teachers must be empowered with high-quality global knowledge to advance in their careers (Vegas & Winthrop, 2020). The innovative pedagogical practices can also be adapted by teachers from other parts of the world to bring the digital revolution to Indian classrooms.

IV. CONCLUSION:

During the pandemic, when everyone was facing challenges in the education sector, the world had shed its notions or beliefs about technologies and accepted the digital changes wholeheartedly. This transformation can bring many revolutionary changes in the education sector. The requirement from educational stakeholders is to be optimistic towards the transformation and keep up the pace with the digital changes. The proper training of teachers and students should be the priority of the government. The researchers and educationists should focus on ways of integrating digital tools into the education sector. The amalgamation of digital technologies into education will make a better educational ecosystem.

REFERENCES:

- I. Baas, M., Admiraal, W., & van den Berg, E. (2019). Teachers' adoption of open educational resources in higher education. *Journal of Interactive Media in Education*, 2019(1), 1–11. <https://doi.org/10.5334/jime.510>
- II. Bordoloi, R. (2018). Transforming and empowering higher education through Open and Distance Learning in India. *Asian Association of Open Universities Journal*, 13(1), 24–36. <https://doi.org/10.1108/aaouj-11-2017-0037>
- III. Barron, M., Cobo, C., Sanchez Ciarrusta, I., & Munoz Najar, A. (2021, April 27). What is Hybrid Learning? How can countries get it right? *World Bank Blogs*. <https://blogs.worldbank.org/education/what-hybrid-learning-how-can-countries-get-it-right>, accessed 15 September 2021
- IV. Bhongade, D., & Sarode, Y. M. (2018). Prospect of E-Learning in Indian Higher Education: Trends and Issues. 5, 2394–0697.
- V. Basilaia, G., & Kvavadze, D. (2020). Transition to Online Education in Schools during a SARS-CoV-2 Coronavirus (COVID-19) Pandemic in Georgia. *Pedagogical Research*, 5(4). <https://doi.org/10.29333/pr/7937>
- VI. Barbero, S. M. (2020, December 11). COVID-19 has accelerated the digital transformation of higher education. *World Economic Forum*. <https://www.weforum.org/agenda/2020/07/covid-19-digital-transformation-higher-education/>, accessed 14 September 2021
- VII. D. (2021, August 26). How IoT Is Used in Education: IoT Applications in Education. *Digiteum*. <https://www.digiteum.com/iot-applications-education/>, accessed 17 September 2021
- VIII. Dictionary, C. (n.d.). The new normal definition and meaning | Collins English Dictionary. Collins Dictionaries. <https://www.collinsdictionary.com/dictionary/english/the-new-normal>, accessed 17 September 2021, accessed 17 September 2021
- IX. Dhawan, S. (2020). Online Learning: A Panacea in the Time of COVID-19 Crisis. *Journal of Educational Technology Systems*, 004723952093401. <https://doi.org/10.1177/0047239520934018>
- X. Ehlers, M., Schuwer, R., & Janssen, B. (2018). OERs in TVET: Open Educational Resources for Skills Development. *UNESCO-UNEVOC International Centre* ..., 12. <https://eric.ed.gov/?id=ED590227>
- XI. Fàbrega, M. (2021, April 5). Hybrid learning in the post-covid era. *Opentrends*. <https://www.opentrends.net/en/hybrid-learning-in-the-post-covid-era>, accessed 20 September 2021
- XII. Gunawan, G., Sahidu, H., Susilawati, S., Harjono, A., & Herayanti, L. (2019). Learning Management System with Moodle to Enhance Creativity of Candidate Physics Teacher. *Journal of Physics: Conference Series*, 1417(1). <https://doi.org/10.1088/1742-6596/1417/1/012078>
- XIII. Impey, C. (2020, July 23). Massive online open courses see exponential growth during COVID-19 pandemic. *The Conversation*. <https://theconversation.com/massive-online-open-courses-see-exponential-growth-during-covid-19-pandemic-141859>, accessed 17 September 2021
- XIV. Kaur, D. (2021, April 8). Here's how blockchain could transform higher education. *Tech Wire Asia*. <https://techwireasia.com/2021/04/heres-how-blockchain-could-transform-higher-education/>, accessed 18 September, 2021
- XV. Lall, S., & Singh, N. (2020). COVID-19: Unmasking the new face of education.

- International Journal of Research in Pharmaceutical Sciences, 11(Special Issue 1), 48–53. <https://doi.org/10.26452/ijrps.v11iSPL1.2122>
- XVI. Lawless, C. (2018, October 25). What is eLearning? LearnUpon. <https://www.learnupon.com/blog/what-is-elearning/>, accessed 9 September 2021
- XVII. Learning Analytics 101 - Learning Analytics Research Network (LEARN). (n.d.). NYU Steinhardt. from <https://steinhardt.nyu.edu/learning-analytics-101>, accessed 18 September 2021
- XVIII. NuWire (2021, January 18). The Role of Blockchain Technology in the Education Sector. NuWireInvestor. <https://www.nuwireinvestor.com/the-role-of-blockchain-technology-in-the-education-sector/>
- XIX. Marr, B. (2021, April 19). Extended Reality In Education: The 5 Ways VR And AR Will Change The Way We Learn At School, At Work And In Our Personal Lives. Forbes. <https://www.forbes.com/sites/bernardmarr/2021/04/19/extended-reality-in-education-the-5-ways-vr-and-ar-will-change-the-way-we-learn-at-school-at-work-and-in-our-personal-lives/?sh=4ebe8aa41301>, accessed 18 September 2021
- XX. Miller, K. (2020, February 18). What is Learning Analytics & How Can it Be Used? Northeastern University Graduate Programs. <https://www.northeastern.edu/graduate/blog/learning-analytics/>, accessed 18 September 2021
- XXI. Meola, A. (2020, March 12). Applications of Internet of Things technology in the education sector. Business Insider. <https://www.businessinsider.in/education/news/applications-of-internet-of-things-technology-in-the-education-sector/articleshow/74601506.cms>, accessed 10 September 2021
- XXII. Moore, S. (2019, October 16). 4 Ways Blockchain Will Transform Higher Education. Gartner. <https://www.gartner.com/smarterwithgartner/4-ways-blockchain-will-transform-higher-education>, accessed 11 September 2021
- XXIII. Nair, S., & Patil, R. (2012). A Study on the Impact of Learning Management System on Students of the University of Jordan. International Journal of Computer Science Issues, 9(2), 379–385. <https://doi.org/10.4236/jsea.2015.811056>
- XXIV. Omer, A. H., PhD. (2021, May 12). The Importance Of Learning Analytics In Learning And Development. ELearning Industry. <https://elearningindustry.com/learning-analytics-benefits-ld>
- XXV. Priscila, P. (2020, July 17). What is Mobile Learning (M-Learning)? | Easy LMS. Easy-Lms. <https://www.easy-lms.com:443/knowledge-center/lms-knowledge-center/mobile-learning/item1038>, accessed 10 September 2021
- XXVI. Ray, P. P. (2010). Web-Based E-Learning in India: the Cumulative Views of Different Aspects. Indian Journal of Computer Science and Engineering, 1(4), 340–352
- XXVII. Shenoy, V., Mahendra, S., & Vijay, N. (2020). COVID 19 Lockdown Technology Adaption, Teaching, Learning, Students Engagement and Faculty Experience. Mukta Shabd Journal, 9(4), 698–702. <https://www.researchgate.net/publication/340609688>
- XXVIII. Sahu, P. (2020). Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. Cureus, 2019(4), 4–9. <https://doi.org/10.7759/cureus.7541>
- XXIX. Smiderle, R., Rigo, S. J., Marques, L. B., Peçanha De Miranda Coelho, J. A., & Jaques, P. A. (2020). The impact of gamification on students' learning, engagement and behavior based on their personality traits. Smart Learning Environments, 7(1). <https://doi.org/10.1186/s40561-019-0098-x>
- XXX. Starkey, H. (2020, April 1). Gamification in Education: What is it & How Can You Use It? True Education Partnerships. <https://www.trueeducationpartnerships.com/schools/gamification-in-education/>, accessed 10 September 2021
- XXXI. Tkachenko, I. (2018, October 1). AR / VR Education: Practical Application of the Technology. The APP Solutions. <https://theappsolutions.com/blog/development/ar-vr-in-education/>, accessed 11 September 2021
- XXXII. Vegas, E., & Winthrop, R. (2020, November 17). Global education: How to transform school systems? Brookings. <https://www.brookings.edu/research/global-education-how-to-transform-school-systems/>, accessed 11 September 2021
- XXXIII. Wong, J. (2020, April 28). Transitioning to the new normal in education. The Star. <https://www.thestar.com.my/opinion/letters/2020/04/28/transitioning-to-the-new-normal-in-education>, accessed 11 September 2021
- XXXIV. World Health Organization. (2020). COVID 19 Public Health Emergency of International Concern (PHEIC).
- XXXV. Zhou, L., Li, F., Wu, S., & Zhou, M. (2020). "School's Out, But Class's On", The Largest Online Education in the World Today: Taking China's Practical Exploration During The COVID-19 Epidemic Prevention and Control as an Example. Best Evidence of Chinese Education, 4(2), 501–519. <https://doi.org/10.15354/bece.20.ar023>